Linking Cumulative Effects Assessment

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Linking Cumulative Effects Assessment and Sustainability

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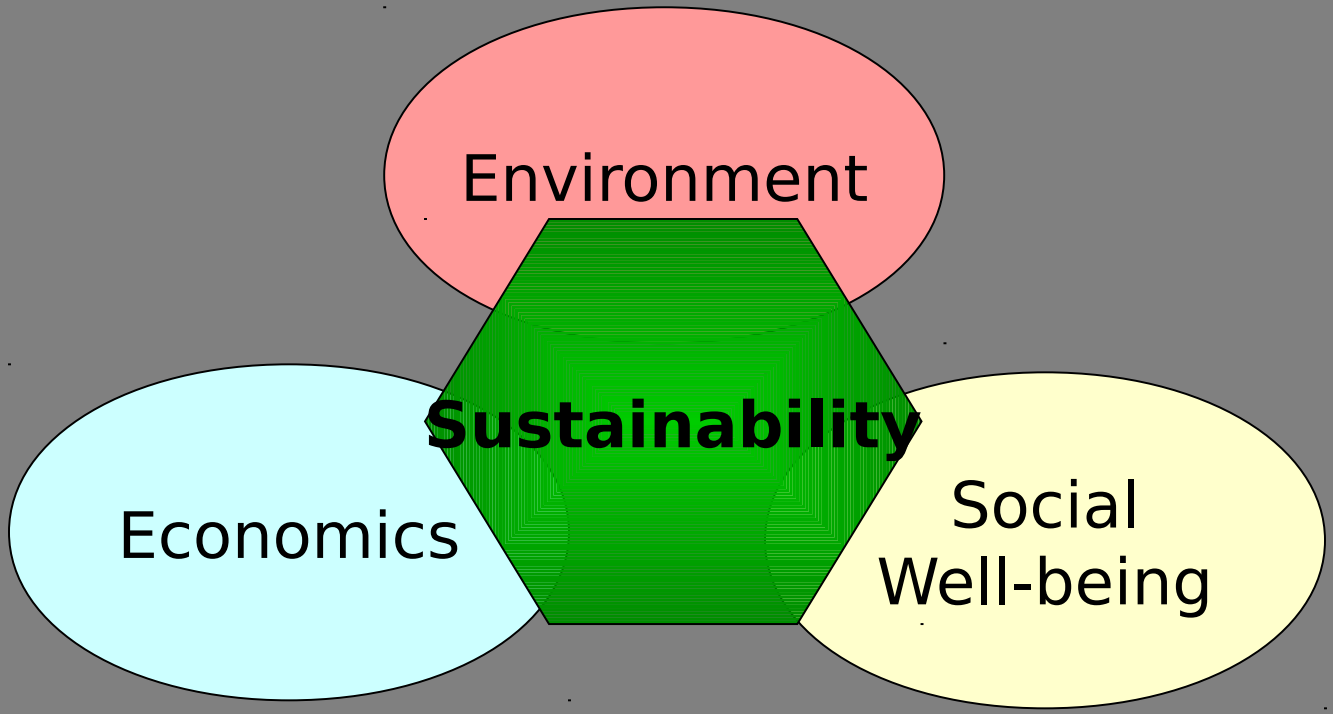


Sustainability: "A synergistic process whereby ***environmental*** and ***economic*** and ***quality of life*** considerations are effectively balanced in project ***planning, design, construction, operation*** and ***maintenance*** in meeting the needs of the present without compromising the quality of life for future generations."

Lt. Gen. Robert B. Flowers
Commander and Chief of Engineers

Uncertain futures

Economics

Cultural expectations

Conflicts among competing uses

Social values

Costs

Sustainability involves:

Biocomplexity

Interconnections, interactions, conflicts

Unknown relationships

Natural capital

Genetic integrity

Variable scales

Sustainability involves:

What is Sustainability?

- Restoration project that requires no irrigation or pumping
- Use of non-structural or bioengineering approaches
- Continued recharge of stream, return of historic flows
- Maintenance of viable population levels
- etc.

What is Sustainability?

It's easier to identify what is NOT sustainable

Loss of Communities

85% loss, natural longleaf pine forests in TX and LA since 1936

99%+ loss, original tallgrass prairie in IN

95% of waters in MT are degraded or have losses of native species and invasions of exotics

Almost all riverine cottonwood forests on big rivers of so ID lack recruitment of younger age classes

85% loss, marshlands in the Coos Bay area of OR

>95% loss, natural barrier island beaches in MD

Noss et al. 1985.

Premise -

* The full meaning of sustainability is daunting and difficult to conceive

* A good cumulative effects analysis will assist us in thinking in the direction of sustainability

Definition in NEPA 1969 and revised by CEQ 1971

- “Cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

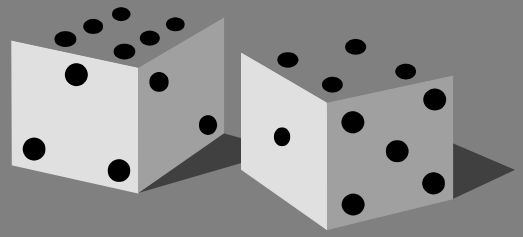
A Full Cumulative Effects Assessment...

- multiple publics affected and/or involved
- looks at consequences of activities from and to the “site”
- concern is over change or rate of change
- must have a reference condition or time
- attends to a large number of topics
- defines increased but varied spatial and temporal scales

How to Tackle the Beast -

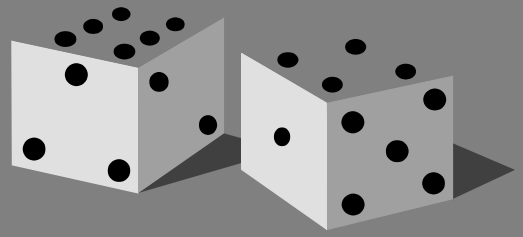
- Use the planning process to advantage
- Use partners, their skills and resources
- Use ecological and other knowledge
- Employ models, GIS analyses
- Do open trade-off analyses
- Document thought and decisions

Planners' Lucky Seven



1. Significant resources
2. Significant effects (from stressors)
3. Indicators of significance

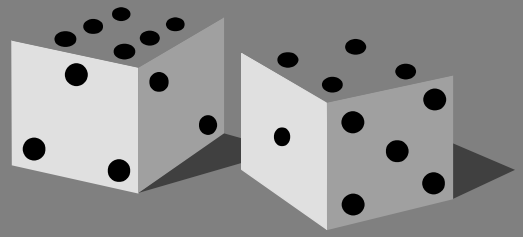
Planners' Lucky Seven



1. Significant resources
2. Significant effects (from stressors)
3. Indicators of significance
4. Appropriate spatial scales
5. Appropriate temporal scales

How much is too much?

Planners' Lucky Seven



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5. Appropriate temporal scales
6. Thresholds of change

What are the contributing factors?

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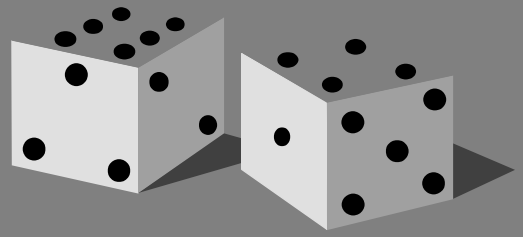

1. Significant resources
2. Significant effects (from stressors)
3. Indicators of significance
4. Appropriate spatial scales
5. Appropriate temporal scales
6. Thresholds of change
7. Synergy among stressors

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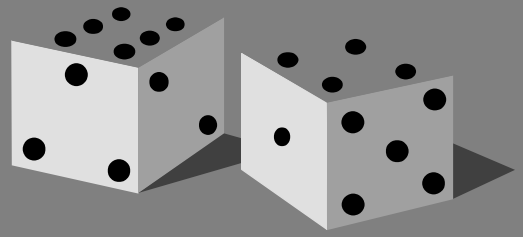

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* The full meaning of sustainability is daunting and difficult to conceive
* A good cumulative effects analysis will assist us in thinking in the direction of sustainability
* We cannot see sustainability without understanding cumulative effects